Geniculate ganglion dehiscence

Thin-cut temporal bone CT should be obtained for operative planning of vestibular schwannoma. Important features to identify:

● for middle fossa approach: bony coverage to identify geniculate ganglion dehiscence.

The main aim of this study placed on cadavers was to compare the data related to the geniculate ganglion (GG) dehiscence and dimension obtained from computed tomography (CT) with dissection values.

This study was conducted on 20 temporal bones obtained from 10 cadavers (4 females and 6 males) aged between 45-92 (71.50±15.98) years. All the measurements related to GG dimension were performed with a CT scanner and microdissection.

The size of GG including its area, length and width did not show statistically significant differences in terms of sexes, sides and assessment methods (CT and cadaveric dissections). The dehiscent GG was observed in 6 (30%) and 5 (25%) out of 20 temporal bones in CT and cadaveric dissections, respectively. The presence and absence of GG dehiscence in CT and dissection were similar in 75%.

The findings based on dissection data suggested that radiological evaluation of dehiscent GG detection might be erroneous by 25%, which proved that surgeons should be careful when lifting the dura to prevent GG injury during middle cranial fossa surgical approaches. On the other hand, there was no statistical difference between CT and dissection measurements related to GG dimension [1)].

The vidian canal, the conduit through the sphenoid bone for the vidian nerve and artery, has become an important landmark in surgical approaches to the cranial base. The objective of this study was to examine the anatomic features of the vidian canal, nerve, and artery, as well as the clinical implications of our findings.

Ten adult cadaveric specimens and 10 dried skulls provided 40 vidian canals for examination with x 3 to x 20 magnification and the endoscope.

The paired vidian canals are located in the skull base along the line of fusion of the pterygoid process and body of the sphenoid bone. The canal opens anteriorly into the medial part of the pterygopalatine fossa and posteriorly at the upper part of the anterolateral edge of the foramen lacerum. The vidian nerve, when followed posteriorly, reaches the lateral surface of the anterior genu of the petrous carotid and the anteromedial part of the cavernous sinus where the nerve is continuous with the greater petrosal nerve. The bone surrounding the upper part of 12 of 20 vidian canals protruded into the floor of the sphenoid sinus and one canal had a bony dehiscence that exposed its contents under the sinus mucosa. Nine petrous carotid arteries (45%) gave rise to a vidian artery, all of which anastomosed with the vidian branch of the maxillary artery in the vidian canal or pterygopalatine fossa. The vidian canal can be exposed by opening the floor of the sphenoid sinus, the posterior wall of the maxillary, the posterior part of the lateral wall of the nasal cavity, and the medial part of the floor of the middle fossa.

The vidian canal and nerve are important landmarks in accessing the anterior genu of the petrous carotid, anteromedial part of the cavernous sinus, and petrous apex [2].

Two hundred seventy-eight consecutive temporal bone CT examinations for a total of 556 sides were reviewed. One hundred ninety-one sides were excluded. Reasons for exclusion included reconstructed coronal views, no coronal views, or a pathologic process, which involved the geniculate ganglion. Six examinations were from patients with clinical superior canal dehiscence confirmed by surgical repair or positive vestibular evoked myogenic potentials. Twenty-four scans were from patients with radiographic superior canal dehiscence confirmed by two independent readings.

The incidence of geniculate ganglion dehiscence in patients with and without radiographic or clinical superior canal dehiscence. Dehiscent geniculate ganglion was defined as at least two consecutive cuts on a coronal CT showing no bone overlying the geniculate ganglion.

The overall incidence of a dehiscent geniculate ganglion was 14.5% in the 365 sides reviewed. The incidence of a dehiscent geniculate ganglion is increased in patients with radiographic and clinical superior canal dehiscence as compared with normal patients and was significantly different by chi analysis (38.1 versus 11.4%).

The presence of radiographic geniculate ganglion dehiscence is common. This finding has particular importance when the middle cranial fossa or subtemporal approach is used, as the facial nerve is more at risk especially when used to address superior canal dehiscence [3].

Unclassified

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